

IN THE CLAIMS

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Currently Amended) A method for automatically aligning a feed forward loop in a radio frequency power amplifier, the method comprising:

applying a radio frequency signal to an input of the radio frequency power amplifier;

splitting the radio frequency signal;

communicating the radio frequency signal through both legs of one loop of the radio frequency power amplifier;

combining radio frequency signals from both legs of the loop; and

monitoring the combined radio frequency signal from a selected point of the radio frequency power amplifier; and

facilitating communication of a radio frequency signal from a signal cancellation loop delay to an error cancellation loop group delay adjuster to facilitate alignment of the signal cancellation loop of the radio frequency power amplifier;

wherein the selected point of the radio frequency power amplifier provides a signal representative of an output of the error cancellation loop group delay adjuster.

5. (Original) The method as recited in claim 4, wherein no breakpoints are open in the radio frequency power amplifier when the radio frequency signal is communicated through both legs of the loop.

6. (Cancelled)

7. (Currently Amended) The method as recited in claim 4, ~~further comprising: wherein~~
said facilitating comprises closing a switch so as to facilitate communication of a radio frequency signal from a signal cancellation loop delay to an error cancellation loop group delay adjuster to facilitate alignment of the signal cancellation loop of the radio frequency power amplifier; and

~~wherein the selected point of the radio frequency power amplifier provides a signal representative of an output of the error cancellation loop group delay adjuster.~~

8. (Currently Amended) The method as recited in claim ~~4~~ 5, further comprising:

~~closing a switch so as to facilitate communication of a radio frequency signal from a signal cancellation loop delay to an error cancellation loop group delay adjuster to facilitate alignment of the signal cancellation loop of the radio frequency power amplifier;~~

~~terminating an output of the radio frequency power amplifier; and~~

~~wherein the selected point of the radio frequency power amplifier provides a signal representative of an output of the error cancellation loop group delay adjuster.~~

9. (Currently Amended) A method for automatically aligning a feed forward loop in a radio frequency power amplifier. ~~The method as recited in claim 4, further comprising:~~

applying a radio frequency signal to an input of the radio frequency power amplifier;

splitting the radio frequency signal;

communicating the radio frequency signal through both legs of one loop of the radio frequency power amplifier;

combining radio frequency signals from both legs of the loop;

monitoring the combined radio frequency signal from a selected point of the radio frequency power amplifier; and

inhibiting communication of a radio frequency signal from a signal cancellation loop delay to an error cancellation loop group delay adjuster to facilitate alignment of the error cancellation loop of the radio frequency power amplifier;

wherein the selected point is an output of the radio frequency power amplifier.

10. (Currently Amended) The method as recited in claim ~~4~~ 9, ~~further comprising:~~
wherein said inhibiting comprises opening a switch so as to inhibit communication of a radio frequency signal from a signal cancellation loop delay to an error cancellation loop group delay adjuster to facilitate alignment of the error cancellation loop of the radio frequency power amplifier; and

~~wherein the selected point is an output of the radio frequency power amplifier.~~

11. (Currently Amended) A method for automatically aligning a feed forward loop in a radio frequency power amplifier. ~~The method as recited in claim 4, comprising:~~

applying a radio frequency signal to an input of the radio frequency power amplifier;

splitting the radio frequency signal;

communicating the radio frequency signal through both legs of one loop of the radio frequency power amplifier;

combining radio frequency signals from both legs of the loop; and

monitoring the combined radio frequency signal from a selected point of the radio frequency power amplifier;

wherein applying a radio frequency signal to an input of the radio frequency power amplifier comprises applying a swept frequency signal to the input.

12. (Currently Amended) The method as recited in claim ~~4~~ 11, wherein applying a radio frequency signal to an input of the radio frequency power amplifier comprises applying a swept frequency signal from a network analyzer to the input.

13. (Currently Amended) A method for automatically aligning a feed forward loop in a radio frequency power amplifier. ~~The method as recited in claim 4, further comprising:~~

applying a radio frequency signal to an input of the radio frequency power amplifier;

splitting the radio frequency signal;

communicating the radio frequency signal through both legs of one loop of the radio frequency power amplifier;

combining radio frequency signals from both legs of the loop;

monitoring the combined radio frequency signal from a selected point of the radio frequency power amplifier; and

using a controller to select the point from which the radio frequency signal of the power amplifier is monitored.

14. (Currently Amended) The method as recited in claim ~~4~~ 13, ~~further comprising~~ wherein using a controller comprises using an automatic test equipment controller to select the point from which the radio frequency signal of the power amplifier is monitored.

15. (Currently Amended) The method as recited in claim ~~4~~ 13, ~~further comprising~~ wherein using a controller comprises using a personal computer to select the point from which the radio frequency signal of the power amplifier is monitored.

16. (Currently Amended) A method for automatically aligning a feed forward loop in a radio frequency power amplifier. ~~The method as recited in claim 4, further comprising:~~

applying a radio frequency signal to an input of the radio frequency power amplifier;

splitting the radio frequency signal;

communicating the radio frequency signal through both legs of one loop of the radio frequency power amplifier;

combining radio frequency signals from both legs of the loop;

monitoring the combined radio frequency signal from a selected point of the radio frequency power amplifier; and

controlling a state of a switch via a controller, the switch facilitating/inhibiting communication of a radio frequency signal from the signal cancellation loop delay to the error cancellation loop group delay adjuster.

17. (Currently Amended) A method for automatically aligning a feed forward loop in a radio frequency power amplifier, The method as recited in claim 4, further comprising:
applying a radio frequency signal to an input of the radio frequency power amplifier;
splitting the radio frequency signal;
communicating the radio frequency signal through both legs of one loop of the radio frequency power amplifier;
combining radio frequency signals from both legs of the loop;
monitoring the combined radio frequency signal from a selected point of the radio frequency power amplifier; and
controlling the application of the said applying of a radio frequency signal to the input of the radio frequency power amplifier via a controller.

18. (Currently) A method for automatically aligning a feed forward loop in a radio frequency power amplifier, The method as recited in claim 4, further comprising:
applying a radio frequency signal to an input of the radio frequency power amplifier;
splitting the radio frequency signal;
communicating the radio frequency signal through both legs of one loop of the radio frequency power amplifier;
combining radio frequency signals from both legs of the loop;
monitoring the combined radio frequency signal from a selected point of the radio frequency power amplifier;
measuring a first complex gain along a passive path of a selected loop with the gain of the active path minimized;
measuring a second complex gain along a composite path of the selected loop;
determining a relative complex gain from the first and second complex gains; and
adjusting alignment of the selected loop based upon the relative complex gain.

19. (Currently Amended) A method for automatically aligning a feed forward loop in a radio frequency power amplifier, ~~The method as recited in claim 4,~~ further comprising:

applying a radio frequency signal to an input of the radio frequency power amplifier;

splitting the radio frequency signal;

communicating the radio frequency signal through both legs of one loop of the radio frequency power amplifier;

combining radio frequency signals from both legs of the loop;

monitoring the combined radio frequency signal from a selected point of the radio frequency power amplifier;

measuring complex gain $(S_{21})^p$ along a passive path of a selected loop with the gain of the active path minimized;

measuring complex gain $(S_{21})^c$ along a composite path of the selected loop;

determining a relative complex gain $(S_{21})^e$ according to the formula $(S_{21})^e = 1 - (S_{21})^c / (S_{21})^p$; and

adjusting an alignment of the selected loop so as to make relative complex gain $(S_{21})^e$ magnitude approximately equal to 0 while also making relative complex gain $(S_{21})^e$ phase approximately equal to 180° .

20. (Currently Amended) A method for automatically aligning a feed forward loop in a radio frequency power amplifier, ~~The method as recited in claim 4,~~ further comprising:

applying a radio frequency signal to an input of the radio frequency power amplifier;

splitting the radio frequency signal;

communicating the radio frequency signal through both legs of one loop of the radio frequency power amplifier;

combining radio frequency signals from both legs of the loop;

monitoring the combined radio frequency signal from a selected point of the radio frequency power amplifier;

measuring complex gain $(S_{21})^p$ along a passive path of a selected loop with the gain of the active path minimized;

measuring complex gain $(S_{21})^c$ along a composite path of the selected loop;
determining a relative complex gain $(S_{21})^e$ according to the formula $(S_{21})^e = 1 - (S_{21})^c / (S_{21})^p$;
adjusting an alignment of the selected loop so as to make relative complex gain $(S_{21})^e$ magnitude approximately equal to 0 while also making relative complex gain $(S_{21})^e$ phase approximately equal to 180° ; and
readjusting an alignment of the selected loop so as to approximately minimize $|(S_{21})^c|$.

21. (Currently Amended) A system for automatically aligning a feed forward loop in a radio frequency power amplifier, the system comprising:

a radio frequency source configured to provide a radio frequency signal to the radio frequency power amplifier;

a radio frequency monitor configured to monitor a radio frequency signal from the radio frequency power amplifier;

a switch for determining what point on the radio frequency power amplifier the radio frequency monitor is in communication with; and

a controller configured to control an output of the radio frequency source and to control a position of the switch;

wherein the radio frequency source and the radio frequency monitor at least partially define a network analyzer.

22. (Cancelled)

23. (Original) The system as recited in claim 21, wherein the controller comprises an automatic test equipment controller.

24. (Original) The system as recited in claim 21, wherein the controller comprises a personal computer.

25. (Original) The system as recited in claim 21, wherein the controller is configured so as to control a position of a switch of the radio frequency power amplifier.

26. (Currently Amended) A system for automatically aligning a feed forward loop in a radio frequency power amplifier, ~~the system as recited in claim 21,~~ further comprising:

a radio frequency source configured to provide a radio frequency signal to the radio frequency power amplifier;

a radio frequency monitor configured to monitor a radio frequency signal from the radio frequency power amplifier;

a switch for determining what point on the radio frequency power amplifier the radio frequency monitor is in communication with;

a controller configured to control an output of the radio frequency source and to control a position of the switch; and

a terminator configured to be placed in electrical communication with an output of the radio frequency power amplifier.

27. (Cancelled)

28. (Cancelled)